

Remarks

The currently pending claims are directed to a paper product having improved strength properties by incorporating into a web a combination of a polyvinylamine polymer and a complexing agent. Currently, claims 17-26 and 46-62 are pending, including independent claims 17, 46 and 55. The pending claims, as now amended, require that the complexing agent comprise a polymeric aldehyde functional compound. Independent claim 17, as now amended, requires that both the polyvinylamine polymer and the complexing agent be present in the web before drying of the web. New claims 46-54 require that the polyvinylamine polymer be formed from the partial hydrolysis of a polymer consisting essentially of polyvinylformamide, wherein the polyvinylformamide is hydrolyzed by at least about 50%. Support for this amendment can be found throughout the specification, such as on page 3 of the application.

In the Office Action, claims 18-20 were indicated as being allowable. Please note that new independent claim 55 incorporates the limitations of claims 18-20. As such, it is believed that claims 55-62 are in condition for allowance.

Claims 17, 21 and 24-25 were rejected in the Office Action under 35 U.S.C. 102(b) as being anticipated by Lauzon (WO 00/34583). According to the Office Action, Lauzon discloses a coacervate stabilizing agent comprising a polyvinylamine and an anionic surfactant. In response, independent claim 17 has now been amended to require that the complexing agent comprise a polymeric aldehyde functional compound. Similarly, new independent claim 46 also requires that the complexing agent comprise a polymeric aldehyde compound as part of a polyelectrolyte complex. Since Lauzon does not disclose or suggest the use of polymeric aldehyde functional compounds as possible anionic components of the disclosed coacervate, Applicants submit that claims 17 and 46 patentably define over Lauzon.

Claim 17 was also rejected under 35 U.S.C. 102(b) as being anticipated by Smigo, et al. (U.S. Patent No. 5,281,307). Smigo, et al. teach a paper making process in which a polyvinylamine and polyvinyl alcohol copolymer is added to a paper web along with a crosslinking agent. As correctly noted in the Office Action,

Smigo, et al. teaches the addition of the copolymer and crosslinking agent at the dry end step of a conventional papermaking process (abstract; col. 4, lines 32-38; col. 6, lines 14-17). In view of the above, claim 25 which requires the polyvinylamine polymer and the complexing agent to be added to an aqueous fibrous suspension was not rejected in the Office Action in view of Smigo, et al. Thus, Applicants have further amended claim 17 to require that the polyvinylamine polymer and the complexing agent be present in the web before the web is dried. In view of this limitation, Applicants submit that claim 17 patentably defines over Smigo, et al.

The Examiner's attention is also directed to new claim 46. Claim 46 is directed to a paper product having improved strength properties comprising a fibrous web containing cellulosic fibers and further comprising a combination of a polyvinylamine polymer and a polymeric aldehyde functional group which form a polyelectrolyte complex. Claim 46 further requires the polyvinylamine polymer to be formed by hydrolyzing a polymer consisting essentially of polyvinylformamide, wherein the polyvinylformamide is hydrolyzed by at least about 50%.

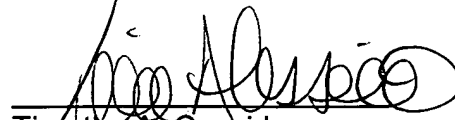
In contrast, Smigo, et al. teach the use of a copolymer comprising a vinyl alcohol and a vinyl amine. These two components are produced by the hydrolysis of vinyl acetate and N-vinylamides respectively (col. 5, lines 14-22). In column 5 on lines 14-16, Smigo et al. teach that the final copolymer should contain between 0.5 and 25 mole% vinylamine units, with from 2 to 12 mole% being preferred. Claim 46, on the other hand, requires that the polyvinylamine polymer be formed by hydrolyzing at least about 50% of a polymer consisting essentially of polyvinylformamide. When polyvinylformamide is hydrolyzed, the result is a final polymer containing over 25% amine groups, which is in stark contrast to the teachings of Smigo, et al. Thus, it is believed that claim 46 also patentably defines over Smigo, et al.

In summary, Applicants submit that the present application is in complete condition for allowance and favorable action, therefore, is respectfully requested. Should any issues remain after consideration of this response, however, then Examiner Fortuna is invited and encouraged to telephone the undersigned at his convenience.

March 18, 2004

Date

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Timothy A. Cassidy", written over a horizontal line.

Timothy A. Cassidy

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